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Academic Motivation in the Context of Self-Determination Theory in Initial Teacher Education

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Abstract

In the context of self-determination theory it is possible to distinguish several qualitatively different aspects of motivation that have an impact on academic achievement, self-efficacy assessment and satisfaction. Starting with the assumption that intrinsic motivation is crucial for the quality of formal education of prospective teachers, the aim of this study was to examine various aspects of academic motivation of future preschool teachers, primary school teachers, and secondary school teachers. The study included 566 students who filled out the Academic Motivation Scale (Vallerand et al., 1992) which measures seven different aspects of motivation according to the self-determination continuum (Gagne & Deci, 2005). By means of exploratory factor analysis five factors that correspond to intrinsic motivation, introjected regulation, identified regulation, external regulation, and amotivation were extracted. Participants, in general, achieved the highest score on the scale of extrinsic identified regulation, while the lowest score was obtained, as expected, on the amotivation scale. Analysis of the intrinsic motivation results showed significantly higher values at the graduate level compared to the undergraduate level, while the opposite pattern was observed for external motivation. For other types of motivation there were no significant differences with regard to the study level.

Key words: *academic motivation; initial teacher education; self-determination.*

Introduction

In the explanation of the academic achievement and the efficiency of the teaching and learning process, it is generally accepted that motivation affects the quality and quantity of knowledge, skills, and competencies. Furthermore, motivation encourages

learning, contributes to a better self-concept, better self-efficacy and psychological well-being of the individual. Therefore, it is very important to know the types of motivation and their role in the academic context. Earlier theories of motivation, primarily within the behavioristic approach, distinguished intrinsic from extrinsic motivation, preferring extrinsic motivation or external reinforcement, reward and punishment. Contemporary motivation theories criticize this interpretation of motivation, emphasising that teachers should encourage intrinsic motivation much more as intrinsic motivation contributes to the students' well-being and better learning outcomes (Jordan et al., 2008; Vansteenkiste et al., 2006; Deci & Ryan, 1985). By accepting cognitivism and constructivism as the dominant theories in education, the behaviouristic interpretation of motivation has been overcome. The recognition of the impact of favourable social and emotional environment in increasing students´ intrinsic motivation has also contributed to these contemporary interpretations of motivation. In this context, a special attention is given to the self-determination theory (Ryan & Deci, 2000; Deci & Ryan, 1985). Autonomy, competence and belonging, as basic psychological needs within this theory, are perceived as necessary for individual well-being. The self-determination theory assumes that the desire to learn is innate to all people, and this desire can be stimulated or suppressed through social factors (Vansteenkiste et al., 2006; Ryan & Deci, 2000). In the academic context that refers to the importance of the quality of social relations in the teaching process.

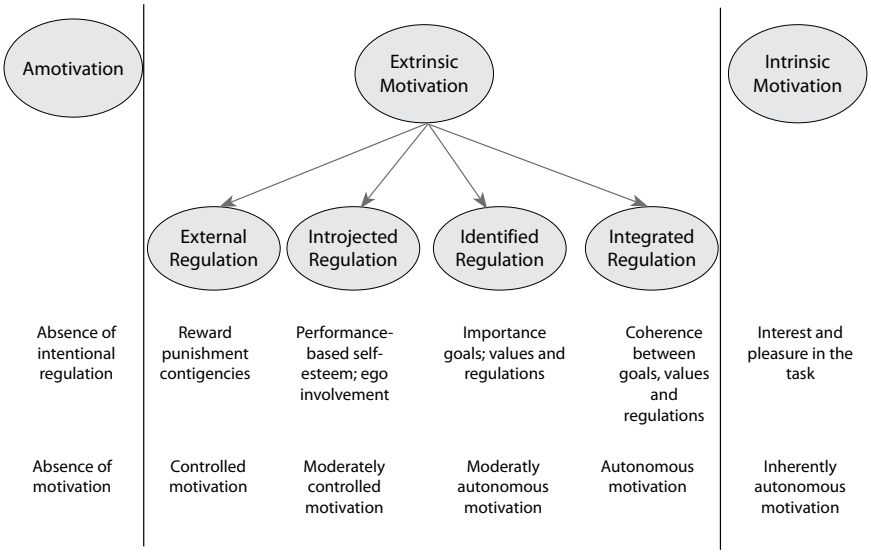

Figure 1. The Self-Determination continuum (Gagne & Deci, 2005, p. 336)

As opposed to other theories which consider motivation as a unique construct, self-determination theory perceives motivation as a continuum with amotivation, manifested as learned helplessness, located on one side of the continuum, and

autonomous intrinsic motivation, representing someone's interest and enjoyment in performing academic activities located on the other end of the continuum (Figure 1).

When individuals are autonomously motivated, they identify themselves with the activities that they carry out and they understand that it will bring them a certain well-being. On the other hand, when they are extrinsically motivated, their behaviour is in the function of external factors (Lacković – Grgin, 2007; Gagne & Deci, 2005). On the self-determination continuum several levels of extrinsic motivation can be distinguished. The first one is e*xternal regulation*, which is the least autonomous type of extrinsic motivation including those behaviours that an individual performs in order to gain some kind of award or to please others. In *introjected regulation* the individual performs activities to avoid guilt or to bolster the ego by getting social support. When an individual expresses *identified regulation*, he/she accepts initially imposed activities as his/her own, recognizing their importance for personal gain. In *integrated regulation* an individual shows a high degree of autonomy and performs activities because he/she really wants to.

In the academic context, knowing different types of motivation gives possibilities for better teaching within an educational process and its organisation because each type of motivation has specific impact on learning, performance, personal experience and individual's well-being (Ryan & Deci, 2000). For example, while extrinsically motivated students want to get the best possible results with the least effort required (Lepper, 1988), intrinsically motivated students are more persistent in activities when they encounter difficulties. Furthermore, they usually use more appropriate learning strategies than extrinsically motivated students (Fairchild et al., 2005; Deci & Ryan, 2000).

There is a paucity of research concerning the relationship between types of motivation and age. In the longitudinal study on a sample of prospective teachers, it has been found that the motivation was stable during initial teacher education, but it significantly decreased after a year and a half they had spent working in the school (Roness, 2011; Roness & Smith, 2010). On the other hand, Ozder and Motorcan (2013) have found that first year students and final year students in initial teacher education have stated a higher level of motivation than students in the second and third year.

Keeping in mind the significance of the teaching profession, and in particular the impact of university education within pre-service education of future preschool teachers, counsellors and school teachers on the quality of their work in practice, it is important to explore different aspects of motivation during the university education. That increases the possibility of structuring the education curriculum and educational processes for promoting autonomous motivation in students. Therefore, the main objective of this study was to examine various aspects of academic motivation among students of pedagogy, preschool teachers and school teachers with respect to the type and level of study. In order to achieve the proposed objective, the study tried to tackle the following issues:

1. To examine the differences in different types of motivation based on the self-determination continuum with regard to the level of study (undergraduate/graduate) and the type of study (pedagogy/preschool teacher/primary school teachers/secondary school teachers),

2. To investigate the differences in different types of motivation in undergraduate students with respect to the type of study (pedagogy/preschool teachers/primary school teachers/secondary school teachers).

Method

Participants

The survey was conducted anonymously and voluntarily at the beginning of the first semester of the 2013/2014 academic year. The research included a total of 566 students of the Faculty of Humanities and Social Sciences, University of Split. The sample structure with respect to the level and type of the study programme is shown in Table 1.

Table 1

Sample structure

	Level of study		
The study group	Undergraduate	Graduate	Total
Pedagogy	72	44	116
Secondary school teacher education	54	124	178
Primary school teacher education	112	62	174
Preschool teacher education	98	0	98
Total	336	230	566

It should be noted that primary school teacher education at the Faculty of Humanities and Social Sciences, University of Split is structured as an integrated five-year study programme. Still, participants were divided into two groups according to the years of study so that they could be compared to other groups of students whose study programme is organised at the undergraduate and graduate level (Pedagogy and Secondary school teachers). Therefore, the first three years formed the undergraduate level, and students in the last two years formed the category of the graduate level. The programme of study of early and preschool education is carried out at the undergraduate level only.

Research Instruments

In the *General Questionnaire*, information regarding participants' gender, age, study programme and years of study were collected. Furthermore, the *Academic Motivation Scale,* AMS-C 28, CEGEP version (Vallerand et al., 1992) was used. The Scale was used on a Croatian sample in an earlier study (Koludrović, 2013) with the author's permission. The AMS is based on the self-determination theory and consists of 28 items to which participants respond on a 7–point scale. In the original version AMS

showed a seven-factor structure (amotivation, three types of extrinsic motivation – external, introjected, identified, and three types of intrinsic motivation – knowledge, accomplishment and experience). Although some earlier studies have confirmed the aforementioned factor structure (Isiksal, 2010; Fairchild et al., 2005), several studies conducted on Croatian samples showed that items referring to intrinsic motivation load on one (Muller & Palekčić, 2005) or two factors (Koludrović, 2013). In these studies, amotivation subscale, as well as extrinsic motivation subscales, showed the same structures as in the original version.

Before conducting the factor analysis, the data suitability for factor analysis was verified using Bartlett's sphericity test and KMO-test. The results of those tests showed that data was suitable for factor detection (Bartlett χ^2=8919.68; p=.00; KMO=.91). By means of exploratory factor analysis with principal component model and varimax normalized rotation five factors were extracted, explaining 63% of variance in total (Table 2). The obtained factor structure differentiated from the original version in the way that items concerning intrinsic motivation loaded on a single factor. Other factors correspond to the structure of the original.

Table 2

Factor loadings for Academic Motivation Scale (Vallerand et al., 1992)

Why do you go to college?	F1	F2	F3	F4	F5
Because I experience pleasure and satisfaction while learning new things.	.76				
For the intense feelings I experience when I am communicating my own ideas to others.	.65				
For the pleasure I experience while surpassing myself in my studies.	.72				
For the pleasure I experience when I discover new things never seen before.	.78				
For the pleasure that I experience when I read interesting authors.	.79				
For the pleasure that I experience while I am surpassing myself in one of my personal accomplishments.	.39				
For the pleasure that I experience in broadening my knowledge about subjects which appeal to me.	.55				
For the pleasure that I experience when I feel completely absorbed by what certain authors have written.	.75				
For the satisfaction I feel when I am in the process of accomplishing difficult academic activities.	.61				
Because my studies allow me to continue to learn about many things that interest me.	.61				
For the "high" feeling that I experience while reading about various interesting subjects.	.78				
Because college allows me to experience a personal satisfaction in my quest for excellence in my studies.	.43				

Why do you go to college?	F1	F2	F3	F4	F5
To prove to myself that I am capable of completing my college degree.		.75			
Because of the fact that when I succeed in college I feel important.		.67			
To show myself that I am an intelligent person.		.78			
Because college allows me to experience a personal satisfaction in my quest for excellence in my studies.		.84			
Because I think that a college education will help me better prepare for the career I have chosen.			.63		
Because eventually it will enable me to enter the job market in a field that I like.			.52		
Because this will help me make a better choice regarding my career orientation.			.78		
Because I want to show myself that I can succeed in my studies.			.65		
Because with only a high-school degree I would not find a high-paying job later on.				.82	
In order to obtain a more prestigious job later on.				.61	
Because I want to have "the good life" later on.				.40	
In order to have a better salary later on.				.58	
Honestly, I don't know; I really feel that I am wasting my time in school.					.75
I once had good reasons for going to college (CEGEP); however, now I wonder whether I should continue.					.68
I can't see why I go to college and frankly, I couldn't care less.					.88
I don't know; I can't understand what I am doing in school.					.86
Explained variance (%)	21%	13%	11%	7%	11%
Cronbach α	.92	.84	.77	.78	.80
M	54.68	16.12	22.69	18.33	5.54
(SD)	13.62	6.13	4.32	5.64	3.01
Range	12-84	4-28	5-28	4-28	4-24
Mean inter-item correlation	.49	.57	.47	.49	.59
Kolmogorov-Smirnov d	.08	.13	.06	.08	.32*

*p<.01

F1 – intrinsic motivation, F2 – identified regulation, F3 – introjected regulation, F4 – external regulation, F5 - amotivation

Considering the obtained factor structure and internal consistency coefficients (Table 2), results were formed for intrinsic motivation, extrinsic identified motivation, extrinsic introjected motivation, external motivation and amotivation, by adding assessments on items that form each of the motivation subscales. A higher result on each subscale implies higher levels of that specific motivation. To test the normality of distributions for each subscale, several Kolmogorov-Smirnov tests were implemented. The results are shown in Table 2. It is evident that only the results on the amotivation subscale significantly differed from a normal distribution, therefore, in further analysis of these results the nonparametric tests were used.

Results and Discussion

In addressing the first research question, a series of two-way analyses of variance with the type and level of study as independent variables were carried out. The results of these analyses are shown in Table 3.

Table 3

Results of two-way ANOVA to test the effects of the types and levels of study on different types of motivation

Motivation	Type of study	study level	two-way ANOVA				
			M	Levene F	$F_{type\ of\ study}$ (2, 462)	$F_{study\ level}$ (1, 462)	$F_{type\ x\ level}$ (2, 462)
Intrinsic	Pedagogy	*undergraduate*	4.75	1.24; p=.29	1.61	6.13* Scheffe p=.004 (graduate> undergraduate)	0.71
		graduate	4.83				
	Primary school teacher	*undergraduate*	4.39				
		graduate	4.85				
	Secondary school teacher	*undergraduate*	4.44				
		graduate	4.70				
Identified Regulation	Pedagogy	*undergraduate*	5.74	1.22 p=.30	0.77	2.19	0.63
		graduate	5.81				
	Primary school teacher	*undergraduate*	5.52				
		graduate	5.84				
	Secondary school teacher	*undergraduate*	5.56				
		graduate	5.65				
Introjected Regulation	Pedagogy	*undergraduate*	4.21	1.98 p=.08	0.33	0.06	1.49
		graduate	3.94				
	Primary school teacher	*undergraduate*	4.15				
		graduate	4.20				
	Secondary school teacher	*undergraduate*	4.18				
		graduate	4.19				
External Regulation	Pedagogy	*undergraduate*	4.96	2.55 p=.03	0.45	13.36** Scheffe p=.001 (undergraduate> graduate)	1.29
		graduate	4.12				
	Primary school teacher	*undergraduate*	4.81				
		graduate	4.48				
	SEcondary school teacher	*undergraduate*	4.88				
		graduate	4.52				

According to the data shown in Table 3, it can be seen that there is a significant difference in intrinsic motivation (F=6.13; p<.01) and external regulation (F=13.36; p<.01) with respect to the level of study, whereas type of study has not been shown as significant factor for any type of motivation. Graduate students have shown a significantly higher level of intrinsic motivation compared to undergraduate students, while undergraduate students, compared to graduate students, have shown a significantly higher level of external regulation. In other types of motivation significant difference with regard to the study level was not found. The results suggest a positive qualitative shift in the students' motivation from undergraduate to graduate level that can be attributed to the content and the teaching methodology aspects of courses.

As a matter of fact, at the graduate level or in the final years of initial primary school teacher education, most of the courses are based on connecting theoretical knowledge and practical skills in a way that a significant portion of students' obligations is realized through practical and field classes as well as through direct work in educational institutions and schools. It is reasonable to assume that such forms of teaching and learning can contribute to the intrinsic motivation of students. This is in line with the results of some previous research indicating that intrinsic motivation is associated with learning strategies based on problem solving and projects, as well as with learning strategies that encourage collaborative learning and practical work (Karaaslan et al., 2014; Koludrović, 2013).

Considering the amotivation subscale distribution (Table 2), Kruskall-Wallis ANOVA and Mann-Whitney U test were used to investigate the type of study and study level effects on the amotivation results. Kruskal-Wallis ANOVA showed significant differences in amotivation regarding the type of study ($H(3,N=566)=8.68$; $p=.03$). Specifically, Pedagogy students achieved the highest mean rank (mean rank = 315.49), while future Primary School Teacher students scored lowest (mean rank = 265.94). Mann-Whitney U test showed that students do not differ in amotivation with respect to the level of study ($U=36858.50$; $z=.93$; $p=.29$).

Since initial preschool teacher education encompasses only the undergraduate level of college education, data collected in this subsample were not included in testing the effects of the level and type of studies. Therefore, with the aim of answering the second research question, a series of one-way analyses of variance had been conducted with the type of study as the independent variable. Undergraduate level data were analysed for four different programmes of study. The analyses showed that students of different study programmes have different levels of intrinsic ($F=5.51$; $df=3,332$; $p=.001$) and external regulation ($F=5.78$; $df=3,332$; $p=.001$), while in other types of motivation study type effect was not obtained. Those results are shown in Figures 2 and 3.

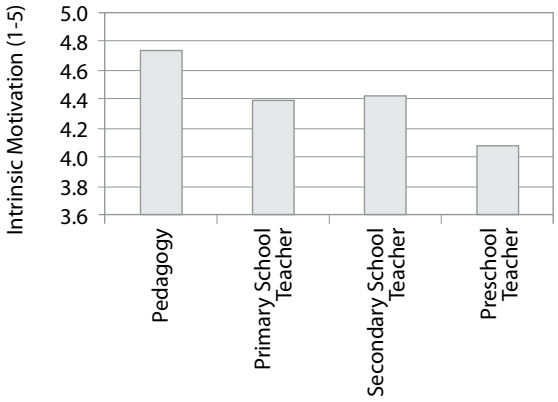

Figure 2. Differences in intrinsic motivation with respect to the type of study

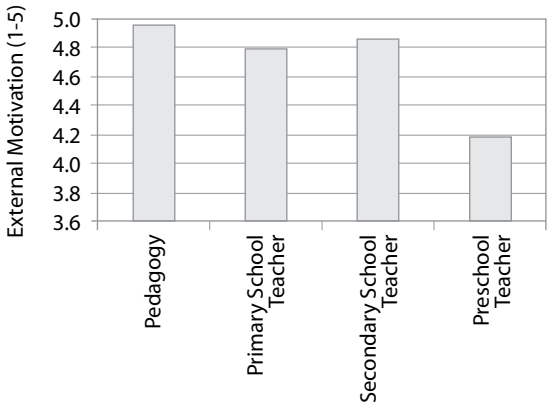

Figure 3. Differences in extrinsic motivation with respect to the type of study

Finally, when all of the results are compared, it can be concluded that the highest scores in the whole sample were obtained for extrinsic identified motivation (M=5.67), followed by external motivation (M=4.58) and intrinsic motivation (M=4.55). As expected, students scored lowest on amotivation (M=1.38), which is in accordance with the results of previous research (Koludrović; 2013; Muller & Palekčić, 2005).

Final Considerations

The results showed that the participants assessed identified regulation as the most prominent type of motivation, which is partly autonomous and represents the state in which actions are motivated by the interests and desires to achieve goals and gain certain profits. Thereby, individuals accept the activity as personally important although it was initially imposed (Lacković - Grgin, 2007; Ryan & Deci, 2000). It seems that additional investment in structuring higher education curricula and organizing classes based on students' activities could largely motivate students to take responsibility for their own learning as much as possible and encourage them to take greater autonomy in their work. The results of this research also suggest the importance of structuring curricula based on active learning and the greater implementation of theoretical knowledge in practical teaching activities. This conclusion arises from the results which showed that graduate students demonstrate higher levels of intrinsic motivation than undergraduate students whose classes are more focused on the acquisition of theoretical knowledge (Table 3). This finding is corroborated by the results of previous studies showing that teaching and learning strategies focused on students, such as problem-based learning and project-based learning, significantly contribute to the autonomous motivation of students (Koludrović, 2013; Brewer, 2005). Further research should take into account the insufficiently explored role of university teachers in students' motivation since previous studies suggest that student intrinsic motivation is associated with teachers' behavior and motivation, particularly with teachers´ openness to discussing and accepting other peoples´ opinions (Brewer 2005; Spaulding, 1992).

References

Brewer, E. W. (2005). Professor's Role in Motivating Students to Attend Class. *Journal of Industrial Teacher Education*, 42(3), 23-47.

Deci, E. L., & Ryan, R. M. (1985). *Intrinsic Motivation and Self-Determination in Human Behavior*. New York: Plenum. http://dx.doi.org/10.1007/978-1-4899-2271-7

Fairchild, A. J., Horst, S. J., & Finney, S. J. (2005). Evaluating new and existing validity evidence for the Academic Motivation Scale. *Contemporary Educational Psychology*, 30(3), 331-358. http://dx.doi.org/10.1016/j.cedpsych.2004.11.001

Gagne, M., & Deci, E. L. (2005). Self-determination theory and work motivation. *Journal of Organizational Behavior*, 26, 331-362. http://dx.doi.org/10.1002/job.322

Isiksal, M. (2010). A comparative study on undergraduate students' academic motivation and academic self-concept. *The Spanish Journal of Psychology*, 13(2), 572-585. http://dx.doi.org/10.1017/S1138741600002250

Jordan, A., Carlile, O., & Stack, A. (2008). *Aproaches to Learning: A Guide for Teachers*. Berkshire: Open University Press.

Karaarslan, G., Sungur, S., & Ertepinar, H. (2014). Developing pre-service science teachers' self-determined motivation toward environment through environmental activities. *International Journal of Environmental and Science Education*, 9, 1-19.

Koludrović, M. (2013). *Problemsko učenje u kurikulumu obrazovanja nastavnika [Problem – based learning in teacher education curriculum]*. Doctoral thesis. Zagreb: University of Zagreb.

Lacković – Grgin, K. (2007). Motivacijska osnovica samoregulacije tijekom životnih tranzicija [Motivational basis of self-regulation during life transitions]. *Suvremena psihologija [Contemporary Psychology]* , 10(2), 257-275.

Lepper, M. R. (1988). Motivational considerations in the study of instruction. *Cognition and Instruction,* 5, 289-309. http://dx.doi.org/10.1207/s1532690xci0504_3

Muller, F. H., & Palekčić, M. (2005). Continuity of motivation in higher education: A three-year follow-up study. *Review of Psychology*, 12(1), 31-43.

Ozder, H., & Motorcan, A. (2013). An analysis of teacher candidates' academic motivation levels with respect to several variables. *British Journal of Arts and Social Sciences*, 15(1), 42-53.

Roness, D. (2011). Still motivated? The motivation for teaching during the second year in profession. *Teaching and Teacher Education*, 27(3), 628-638. http://dx.doi.org/10.1016/j.tate.2010.10.016

Roness, D., & Smith, C. (2010). Stability in motivation during teacher education. *Journal of Education for Teaching International Research and Pedagogy*, 36(2), 169-185. http://dx.doi.org/10.1080/02607471003651706

Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55, 68–78. http://dx.doi.org/10.1037/0003-066X.55.1.68

Spaulding, C. L. (1992). *Motivation in the Classroom.* New York: McGraw-Hill.

Vallerand, R. J., Pelletier, L. G., Blais, M. R., Briere, N. M., Senecal, C., & Vallieres, E. F. (1992). The Academic Motivation Scale: A measure of intrinsic, extrinsic, and amotivation in education. *Educational and Psychological Measurement*, 52, 1003–1017. http://dx.doi.org/10.1177/0013164492052004025

Vansteenkiste, M., Lens, W., & Deci, E. L. (2006). Intrinsic versus extrinsic goal contents in self-determination theory: Another look at the quality of academic motivation. *Educational Psychologist*, 41(1), 19–31. http://dx.doi.org/10.1207/s15326985ep4101_4

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Akademska motivacija u kontekstu teorije samoodređenja u inicijalnom obrazovanju budućih odgojitelja, učitelja i nastavnika

Sažetak

U kontekstu teorije samoodređenja moguće je razlikovati nekoliko kvalitativno različitih aspekata motivacije i regulacije ponašanja koji imaju učinka na akademsko postignuće, procjenu samoefikasnosti i zadovoljstva pojedinca. Polazeći od pretpostavke da je za kvalitetu inicijalnog obrazovanja odgojitelja i nastavnika ključna intrinzična motivacija, odnosno autonomna regulacija ponašanja, cilj ovog istraživanja bio je ispitati različite aspekte akademske motivacije kod studenata odgojiteljskog, učiteljskog i nastavničkog usmjerenja, kao i studenata pedagogije. U istraživanju je sudjelovalo 566 studenata, a primijenjena je Skala akademske motivacije (Vallerand i sur., 1992) kojom se mjeri sedam različitih aspekata motivacije u skladu s kontinuumom samoodređenja (Gagne i Deci, 2005). Eksploratornom faktorskom analizom metodom glavnih komponenata uz varimax rotaciju dobiveno je rješenje od pet faktora koji odgovaraju intrinzičnoj motivaciji, introjiciranoj, identificiranoj i eksternalnoj ekstrinzičnoj motivaciji i amotivaciji. Na cijelom uzorku sudionika najviši rezultat postignut je na skali ekstrinzične identificirane regulacije, a najniži je rezultat očekivano utvrđen na skali amotivacije. Analiza rezultata intrinzične motivacije pokazala je značajno veće vrijednosti na diplomskoj razini u odnosu na preddiplomsku, a kod eksternalne regulacije utvrđeno je suprotno. Kod ostalih oblika motivacije nisu utvrđene značajne razlike s obzirom na razinu studija.

Ključne riječi: *akademska motivacija; nastavnički studij; samoodređenje; studij pedagogije; studij predškolskog odgoja; učiteljski studij.*